

Notice of Allowability

Application No.

10/531,203

Examiner

Kamran Afshar 571-272-7796

Applicant(s)

DUAN ET AL.

Art Unit

2617

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 12/04/2007 & 12/21/2007.
2. ☒ The allowed claim(s) is/are 1,3-13 and 15-22.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

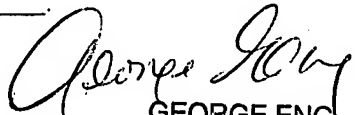
Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material

5. ☐ Notice of Informal Patent Application
6. ☒ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____


GEORGE ENG
SUPERVISORY PATENT EXAMINER

DETAILED ACTION

It is noted that Applicant submitted the Corrected drawing(s) to obviate the Drawing objection.

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. Samuel Borodach, Reg. No. 38,388 on 12/21/2007.

The application has been amended as follows:

In The Claim(s):

1. (Currently Amended) A method for positioning a mobile station, comprising:
 - a. instructing a serving base station to measure Round Trip Time (RTT) between the serving base station and the mobile station, when a positioning request from the mobile station is received in a mobile communication network, receiving a measurement result reported from the serving base station, and at the same time sending a measurement control message to the mobile station;
 - b. determining all repeaters that take the serving base station as a donating base station, configuring auxiliary positioning parameters for the repeaters, and controlling transmission of auxiliary positioning signals from the repeaters to the mobile station;
 - c. measuring, in the mobile station, Time Differences of Arrival (TDOAs) between the base stations and the repeaters according to the measurement control message sent from the mobile communication network and the auxiliary positioning signals sent from the repeaters, and reporting TDOA measurement results to the mobile communication network; and
 - d. determining a position of the mobile station by estimating, in the mobile communication network, the position of the mobile station according to received RTT between the serving base station and the mobile station as well as TDOAs between the base stations and the repeaters.

3. (Currently Amended) The method for positioning a mobile station according to claim 1, wherein said auxiliary positioning parameter includes: Idle Period DownLink (IPDL) parameter, a scrambling code assigned to [[a]] the repeater, and carrier frequency and transmission power of the auxiliary positioning signals.

13. (Currently Amended) A repeater for implementing the function of positioning the mobile station, comprising:

a downlink processing channel and an uplink processing channel, wherein said downlink processing channel includes an added auxiliary positioning unit,

a communication module operable to receive signals carrying auxiliary positioning parameters sent from a mobile communication network;

a frame timing recovery module operable to receive downlink signals from a base station, process the signals to obtain a frame synchronization signal, and send said frame synchronization signal to a timing control module and a pilot modulating module, respectively;

[[a]] the timing control module operable to receive the frame synchronization signal sent from the frame timing recovery module, and generate and send a pulse sequence to the pilot modulating module, wherein

the pilot modulating module, which receives the frame synchronization signal sent from the frame timing recovery module and the pulse sequence sent from the timing control module, is operable to generate and send auxiliary positioning signals to the mobile station.

17. (Currently Amended) The repeater according to claim 13, wherein said communication module is operable to receive the auxiliary positioning parameters from the base station through signaling.

18. (Currently Amended) The repeater according to claim 13, wherein said communication module is operable to receive the auxiliary positioning parameters via the operation and maintenance terminal of the repeater.

Allowable Subject Matter

2. In view of the amended claims filed on 12/04/2007 and amended claims as discussed above in item 1, Claims 1, 3-13, 15-22 are allowed.

The following is an examiner's statement of reasons for allowance: 1, 3-13, 15-22.

Claims 1, 3-13, 15-22 are allowed for the reasons as set forth in the previous action mailed 09/04/2007.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a) Diao (U.S. 7,283,787 B2). b) Masuda (U.S. 6,987,978 B2).

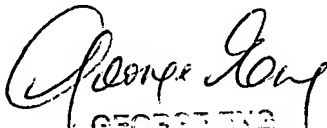
c) Duan (U.S. Pub. No.: 2007/0291668 A1).

Any inquiry concerning this communication or earlier communication from the examiner should be directed to Kamran Afshar whose telephone number is (571) 272-7796. The examiner can be reached on Monday-Friday.

If attempts to reach the examiner by the telephone are unsuccessful, the examiner's supervisor, Eng, George can be reached @ (571) 272-3984. The fax number for the organization where this application or proceeding is assigned is 571-273-8300 for all communications.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Kamran Afshar


GEORGE ENG
SUPERVISORY PATENT EXAMINER